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Orthopedic Anesthesia in Haiti

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ABSTRACT

Healthcare practitioners from around the world responded almost immediately in the aftermath of the 2010 earthquake in Haiti. This article reports on the efforts of an orthopedic trauma team in Haiti and its efforts in providing surgery without general anesthesia.

A 7.0 magnitude earthquake devastated Haiti on January 12, 2010 (Figure 1). Haiti is the most impoverished nation in the Western Hemisphere, with very little access to healthcare. When the earthquake struck, it left 250,000 injured and 150,000 dead. According to the American Society of Anesthesiologists, 15% of injured earthquake survivors require surgery, based on previous studies of quakes.[1] Most injuries were orthopedic and soft tissue injures.

This natural disaster prompted one of the largest medical missions of healthcare providers to date. The American College of Surgeons stated that approximately 750 individuals signed up within the first 2 weeks after the earthquake, and healthcare practitioners from around the world responded rapidly. The United States and Italy both sent 1,000-bed hospital ships with computed tomography scanner capability. Many university hospitals coordinated missions for their staffs, while other physicians set up their own trips.

Fred Wilson, MD, specialist in orthopedic trauma at Ochsner, set up an orthopedic team to go to Haiti. Dr Wilson's team consisted of 7 healthcare providers: a trauma orthopedic surgeon, an orthopedic anesthesiologist, and several nurses in departments ranging from the postanesthesia care unit to the operating room. In preparation for the trip, Ochsner donated all the necessary regional/orthopedic anesthesia equipment (spinal and epidural kits, local anesthetic, nerve stimulators, etc), and SonoSite (Bothell, WA) loaned the team a portable ultrasound machine. On March 19, 2010, the group traveled to Haiti with all the anesthesia supplies to provide medical services at St Damien Hospital in Port-au-Prince (Figure 2).

St Damien Hospital is a 120-bed pediatric hospital with 2 operating rooms, an 18-bed emergency unit, a 10-bed pediatric intensive care unit, and a 9-bed cancer center. After the earthquake, St Damien was one of the only hospitals in the country with functioning operating rooms and was converted to a combined pediatric/adult hospital. Medical supplies there were minimal, and anesthetic supplies were nonexistent. In the aftermath of the quake, the hospital lost all in-line oxygen and had no working anesthesia machines, ventilators, or monitors for vital signs. Also, St Damien had a massive shortage of intravenous fluids, and blood products were not readily available. Essentially, general anesthesia and significant blood loss were not options at St Damien.

Despite limited resources, multiple adult patients received successful operations without general anesthesia capabilities. The anesthesia consisted of ultrasound-guided regional nerve blocks ranging from lumbar plexus to sciatic (Figures 3 and 4). The monitoring consisted of a manual blood pressure cuff and an unreliable pulse oximeter.

Postoperatively, all of the patients did well. Most of the cases ranged from open reduction internal fixation fracture repair to washouts. The anesthesia team also provided services to an Italian high-risk obstetrics team. The first case the anesthesia team participated in was a cesarean delivery under spinal anesthesia, with a Haitian patient, Italian surgeons, and American anesthesiologists. Despite the language barriers and limited resources, mother and baby did great.

Ralph E. Gebhard, MD, stated, ''Nobody got intubated and nobody died in this setting, although we had really, really poor resources.'' Dr Gebhard is an orthopedic/regional anesthesiologist from Florida who arrived in Haiti 3 days after the quake.

Thanks to advances in regional anesthesia, major surgeries can be performed without general anesthesia. In disaster zones, most hospitals become

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Figure 1. A church in Port-au-Prince, Haiti, after the earthquake.

Figure 2. The Ochsner orthopedic team carrying regional anesthesia supplies to St Damien.

crippled to the point that general anesthesia is not possible. Regional anesthesia is not only used in disaster medicine, but also on the battlefield.

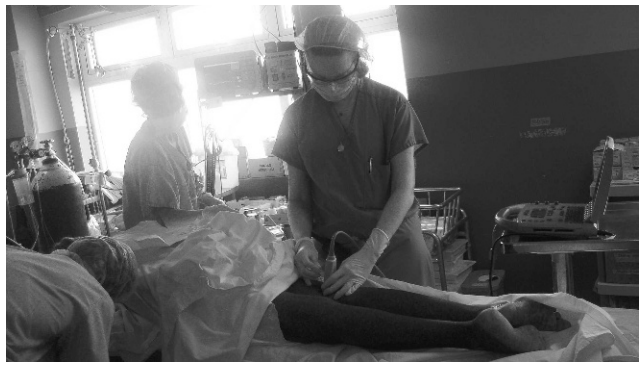

Figure 3. Ultrasound-guided regional anesthesia.

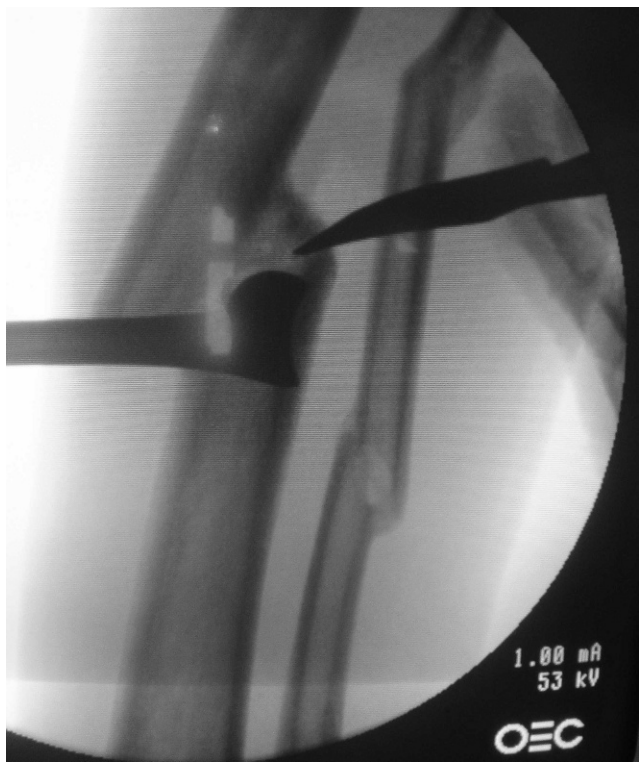

Figure 4. A patient on whom we performed orthopedic surgery under regional anesthesia.

Specialists interested in working in Haiti are being directed to the website of the American College of Surgeons: www.facs.org. The surgical group's Operation Giving Back has added anesthesiologists to its system.

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This article meets the Accreditation Council for Graduate Medical Education competencies for Patient Care, Interpersonal Skills, and Systems-Based Practice.